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Elektrichestvo, No 7, 1950, p 89.

TRANSFORMER BUILDING IN CZECEOSLOVAKIA

A. G. Krayz

A number of articles appearing in a 1949 issue of the periodical "Elektro-technicky Obzor," published in Czechoslovakia, were devoted to modern problems of transformer building.

Up to the present time, a final solution has not been found to the problem of detecting damage to transformers during impulse tests, although a number of books on this subject have been published in recent years.

Investigating this problem, Heller, Blavka, and Veverka analyzed the fluctuation of the fundamental oscillation frequency at the neutral point of a transformer violing during interturn short circuiting occurring while carrying out impulse tests. This analysis showed that interturn short circuiting affects the main magnetic flux. Oscillographic study of the oscillations at the neutral point of the coil during an impulse test, and the recording of the fluctuations of these oscillations, while therefore seem to be a good method of detecting interturn and intercoil spark-overs.

A series of experiments to check theoretical data were carried out on transformer models with insulated neutral points. Different windings, with both a large and a small number of turns, were reproduced on these models and it was found that interturn spark-overs were clearly recorded even when the number of shorted turns did not exceed 0.05% of the total (1 turn in 2000). In some cases it was also possible to establish the location of the interturn spark-over in the winding.

K. Fatry's article exemines the impulse strength of the layer-type winding in comparison with the coil type. From the equivalent circuit of a transformer with a layer-type winding, the conditions of aperiodic voltage fluctuation in the winding were worked out for two basic types, and the causes of oscillation in these transformers were analyzed. It was shown that a decrease in the oscillation of the transformer windings under impulse influence could be achieved by

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locating the layer nearest the neutral point closer to the grounded pirts, i.e., by producing the maximum possible increase in its capacitance to ground. On this basis, the author proposed a number of winding systems with an increased impulse strength.

M. Gabler's article refers to voltage regulation under load in transformers. The two problems of increasing the quality of slectric power and maintaining a stabilized voltage level at the consumer and are of great importance and where several electric power stations are operating in parallel, these problems can only be solved by the maximum use of regulating transformers. The article gives a description of the systems most commonly used in Czechoslovakia for voltage regulations under load, considers the effects of short circuiting in windings during change-over from one step to another, and examines electromagnetic effects occurring in the switching devices.

F. Pesak's article considers problems connected with the design of transformers for industrial enterprises, the relation between operational consumption and the characteristics of a transformer, reserve capacity, operation in parallel, and the life of a machine under various loads.

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- 4. Fr. Pesak, "Elektrotechnicky Obzor," pp 170-176, No 6-7, 1949.

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